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FACSIMILE TRANSMISSION COVER SHEET

DATE: May 30, 2006 **ATTY DKT: KNI-152-A** **YOUR REF: USSN 09/857,382**

Filing Date : 23 July 2001 **APPLICANT: Fujimoto etal.**

TITLE: HYDROPHILIC MEMBER

TO (COMPANY) : US Patent & Trademark Office, Art Unit 1775

ATTN: Examiner – Andrew T. Piziali **FROM : Joseph P. Carrier**

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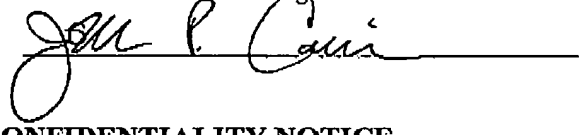
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KNI-152-A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Fujimoto et al.
Serial No.:	09/857,382
Filed:	July 23, 2001
Group Art Unit:	1775
Examiner:	Piziali, Andrew T.
Title:	"HYDROPHILIC MEMBER"

REQUEST FOR REHEARING UNDER 37 CFR 41.52

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Sir:

Introduction

In response to the Board of Patent Appeals and Interferences' (BPAI's) Decision On Appeal, dated 31 March 2006, and pursuant to 37 CFR 41.52, appellant requests a rehearing of said Decision based on the following.

Points Believed to Have Been Misapprehended or Overlooked by the Board

In sustaining the rejection of 1, 3-7, 9, 10 and 12-20, the BPAI makes several comments – assertions regarding various teachings of the applied references (Tada and Komatsu), as well as teachings of a newly cited reference (a printout of two pages from a website relating to rutile materials attached to the Decision, which the BPAI is apparently not formally applying as a basis of the rejection, but merely as an indication of conventional knowledge in the art, similar to a dictionary), and concludes that the combination renders obvious the claimed invention.

Specifically, the BPAI asserts that:

1) they consider the appellant's argument that the claimed subject matter is fundamentally different from the anti-fogging, stain-proof article of Tada to be incorrect because, as noted by the Examiner, Tada teaches that since the silicon oxide layer is nonpolar or has low polarity, the anti-fogging sustainability is improved (with reference to the paragraph bridging Tada's cols. 10-11), whereas the Board views applicant's argument regarding a significant advantage achieved by the claimed invention over Tada to be mere attorney argument insufficient to rebut a prima facie case of obviousness because the argument is unsupported by factual evidence;
2) Tada discloses the general concept of transferring desired surface roughness from an underlayer to an overlaying layer at his col. 5, lines 44-48, even though Tada does not disclose use of SnO2 as a photocatalytic material, and Tada also discloses at his col. 13, lines 11-31 that the surface roughness of an overcoat layer of SiOx or TMCTS provided over the photocatalytic layer has a surface roughness similar to the photocatalytic layer, such that persons of ordinary skill in the art would have had a reasonable expectation of success of transferring surface roughness of an underlying photocatalytic layer to an overcoat layer;
3) Given that SnO2 is known to have a rutile crystal structure, as from the newly cited reference, that Komatsu discloses that TiO2 is known to have a rutile or anatase crystal structure and that Komatsu discloses use of either TiO2 or SnO2 as a

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photocatalyst, it would have been obvious to have selected an SnO2 layer having such a structure to impart a desired surface roughness to an overcoat layer, noting that such finding is consistent with the criterion for a determination of obviousness, i.e., whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success viewed in light of the prior art;

4) The teaching for making the combination of the relevant art teachings need not be explicit in the references, but may be implicit based on what the combined teachings of the references, knowledge of one of ordinary skill in the art and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art;
5) Although Komatsu discloses that he prefers use of (anatase) TiO2 as the photocatalyst, he also expressly teaches use of SnO2, and references must be considered for all they teach – not simply preferred embodiments; and
6) The Board rejects the argument that the advantageous nature of the claimed invention (achieved by surface polarity and surface irregularities, rather than by photocatalytic properties of SnO2) are not achieved by the references, because an applicant cannot show non-obviousness by attacking references individually, where the rejection is based on the combined teachings of the references.

With regard to the Board's Decision and associated assertions, appellant respectfully traverses same and requests that the Board reconsider its Decision, based on the following.

Regarding the assertions 1) and 2), appellant respectfully submits that its argument regarding a fundamental difference between the claimed invention and Tada, as reflected by a significant advantage of the claimed invention over Tada, *is not mere attorney argument*, because it is a matter addressed and supported by the applicant's disclosure, whereas persons of ordinary skill in the art would not have had a reasonable expectation of success of transferring

surface roughness of an underlying photocatalytic layer to an overcoat layer based on the full, fair teachings of Tada or the those of the prior art as a whole.

As disclosed, a hydrophilic member according to the claimed invention achieves a long-lasting anti-fogging film by simply depositing rutile SnO2 on an untreated substrate (untreated relative to having a particular surface roughness) and directly applying thereon an overcoat layer of a material having a surface polarity opposite to that of the SnO2, selected from a small group of oxides and having a surface roughness within a specified range. This simple member is not the same as or suggested by Tada's more complex anti-fogging / stain-proof article. Again, as explained at col. 2, lines 33-47 of Tada, "... it is necessary to meet three requirements at the same time in order to obtain excellent anti-fogging and stain preventing properties using an (sic) photocatalytic film ... first ... high photocatalytic activation... second ... adsorption preventing property ... third ... small contact angle (emphasis added)", and throughout his disclosure Tada uses titanium oxide as the exemplary photocatalytic material because of its high photocatalytic activation. SnO2 does not have high photocatalytic activity.

Further, although Tada indicated that the third requirement above (small contact angle) may be achieved based on the surface roughness of the photocatalytic film (col. 5, lines 18-27), by the use of organomctallic compounds containing specified functional group(s) as an overlayer covering the photocatalytic layer (paragraph bridging cols. 10-11), and by forming the outer surface of such organometallic layer to have a surface roughness similar to those of the photocatalytic layer (col. 13, lines 11-31), Tada never indicates or suggests that such surface roughness of the photocatalytic layer and overlayer may be simply achieved in the manner of the present invention. Rather, Tada requires significant, extra processing to achieve the desired surface roughness in each of his embodiments as explained at his col. 5, line 18 – col. 9, line 67, i.e., either formation of the alkali shut-off layer to have the desired roughness which transfers through to the photocatalytic film, or special processing of the photocatalytic layer after it is deposited.

In this regard, appellant notes the Board's reference to Tada's teaching of transferring a desired surface roughness from an underlayer to an over layer at his col. 5, lines 44-48, appellant

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respectfully submits that Tada does not present this teaching as a concept generally applicable to any situation. Rather, he only discusses this process in association with formation of a surface roughness of the photocatalytic layer. On the other hand, in discussing formation of an organosilane covering layer for the photocatalytic layer at his col. 13, lines 11-31, Tada indicates that the thickness of the organosilane layer may be comparatively large, that the thickness of such layer must not be greatly fluctuated on places, and that it is preferable that dents and projections similar to those of the photocatalytic surface "...are formed on the outside of the organosilane layer." From such discussion Tada does not indicate that the surface roughness of the photocatalytic layer is transferred to the surface of the organosilane layer. Further, even if such a transfer could take place, Tada still requires special processing-formation of the underlayer to achieve the desired surface roughness as discussed at his col. 5, line 52 – col. 9, line 6, contrary to the present invention.

Regarding assertion 3), appellant respectfully submits that the mere fact that SnO2 may have a rutile crystal structure does not mean that a layer of SnO2 will necessarily have such a crystal structure regardless of how the layer is formed. SnO2 is known to have multiple crystal structures, including rutile and orthorhombic, whereas the references applied do not indicate that an SnO2 film formed in the manner disclosed will have a rutile structure. Further, the proposed modification is directly contrary to Tada's first requirement of high photocatalytic activity. Still further, and very significantly, none of the references of record discloses or in any way suggests that a (photocatalytic) layer of SnO2 deposited on any given substrate surface (whether in rutile crystal structure of otherwise) will have an appropriate surface roughness that may be transferred to an overlying layer of organosilane, SiOx or the like. Again, Tada requires special processing to achieve the surface roughness of a photocatalytic layer of TiO2, and indicating that the organosilane layer should

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preferably have appropriate dents and projections "formed" on its outer surface, as discussed above.

Given the actual teachings of the references of record, appellant respectfully submits the conclusion reached by the Examiner and BPAI does not follow from the teachings of the references themselves, i.e., that "it would have been obvious to have selected SnO2 having such a structure to impart a desired surface roughness to an overcoat layer." There is no teaching regarding the surface roughness of an SnO2 layer, whether the layer has rutile crystal structure or otherwise, nor is there any general teaching of transferring surface roughness of an underlayer to an overlayer regardless of other factors such as layer thickness. Thus, appellant respectfully submits that the prior art does not suggest to one of ordinary skill in the art that Tada's method should be modified to use SnO2 as the photocatalytic layer based on a select, isolated teaching of Komatsu, or that any such hypothetical modification would have a reasonable likelihood of success – in the advantageous manner of the present invention.

Regarding assertion 4), appellant again respectfully submits that the prior art, when properly considered as a whole, does not teaches or suggests the invention of claim 1. Again, Tada's method requires significant-extra processing to achieve desired surface roughness of a photocatalytic layer, and simply discusses formation of dents and projections on the outer surface of a protective organosilane layer as discussed above . Similarly, Komatsu's method requires special processing of the overcoat layer to make it porous. Thus, neither of the applied references disclose or in any way suggest the very favorable-advantageous anti-fogging coating achieved by claim 1, which is produced via an unobviously simple process. The newly cited background art merely indicates that SnO2 exists (in one form) in a rutile crystal structure. This does not indicate that SnO2 always exists is rutile form regardless of how it is formed, nor does it in any way suggest that a formed layer of SnO2 will have

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the appropriate surface roughness to achieve a favorable anti-fogging characteristic. Thus, when properly considered as a whole, the prior art does not suggest the proposed modification of Tada to achieve the claimed invention.

Regarding assertions 5)-6), appellant respectfully submits that it is not trying to show non-obviousness by attacking the Tada and Komatsu references individually, but rather is attempting to show that given the full, fair disclosures of these references, persons of ordinary skill in the art would not consider the proposed modification of Tada's nonfogging and stainproof glass articles to be obvious because the references as a whole provide no motivation for the proposed modification. Without repeating all of the arguments presented above or in appellant's Appeal Brief and Reply Brief, again, it is noted that Tada's first requirement is high photocatalytic activity, which would not be achieved with SnO2, whereas no reference teaches/suggests that a photocatalytic SnO2 layer with a rutile crystal structure can be directly formed on a substrate with appropriate surface roughness regardless of the surface characteristics of the underlying substrate, or that such surface roughness of the rutile SnO2 layer is directly transferred to a protective oxide overlayer.

In this regard, appellant respectfully notes that a conclusion that the claimed subject matter is *prima facie* obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. See ***In re Fine***, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Rejections based on § 103 must rest on a factual basis, with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight

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reconstruction to supply deficiencies in the factual basis for the rejection. See ***In re Warner***, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), **cert. denied**, 389 U.S. 1057 (1968).

Conclusion

For all of the foregoing reasons, appellant respectfully requests rehearing of the Decision dated 31 March 2006 in the above matter.

Favorable reconsideration is respectfully requested.

Respectfully submitted,

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CERTIFICATE OF TRANSMISSION

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